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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,818	10/23/2003	Dan M. Ionel	010121-9939	6305
23409	7590	12/21/2005	EXAMINER	
MICHAEL BEST & FRIEDRICH, LLP			TAMAI, KARL I	
100 E WISCONSIN AVENUE			ART UNIT	
MILWAUKEE, WI 53202			PAPER NUMBER	
			2834	

DATE MAILED: 12/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/691,818

Applicant(s)

IONEL ET AL.

Examiner

Tamai I.E. Karl

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15, 17-20, 31, 33-39, and 42-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15, 17-20, 31, 33-39 and 42-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the first and second different magnitudes of magnetizations must be shown or the features canceled from the claims. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 19, 20, 22-24, 25-31, 42, 45-48, 49-52, and 55 are rejected under 35

U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The specification does not contain a full, clear, concise, and exact written description of the permanent magnet material having a magnitude of magnetization different from the spoke portions of permanent magnet material. The specification does disclosed the permanent magnet material circumferentially surrounding the shaft may be unmagnetized or a lack of magnetization, but that does not support being magnetized to different magnitudes of magnetization from the spokes. The specification does not support the permanent magnet material "substantially" surrounding the axis of rotation or a substantially non-magnetic shaft. There is no support for "substantial" or what portion is required to be "substantially" surround the axis of rotation or "substantially non-magnetic" shaft.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1, 3-6, 12-13, 15, 17, 33, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nozawa et al. (Nozawa)(JP 06-038415) and Sakamoto (JP 07-154935). Nozawa teaches a rotor assembly for an electric motor having a spoked permanent magnet rotor (figures 3 and 4) having an axis of rotation, circumferentially extending permanent magnet material 41, 31b with outwardly extending spoke portions of permanent magnet material 31b, 41, ferro-magnetic material forming a plurality of pole pieces 22, 42, each pole piece being positioned between a set of circumferentially adjacent outwardly extending spoke portions of permanent magnet material, and first

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and second shafts/endplates 15 supporting the spoke permanent magnet rotor for rotation about the axis of rotation. Nozawa teaches the poles may be laminated or pressed (inherently compacting) a ferro magnetic metal powder. Nozawa teaches the first radial position being adjacent a hollow core portion 33, 43, with the axis of rotation extending through the core. Nozawa teaches every aspect of the invention except the permanent magnet material being a single body continuously circumferential around the axis of rotation. Sakamoto teaches the magnet being continuous around the axis of rotation (figure 4). It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the motor of Nozawa with the continuous magnet of Sakamoto to provide high torque and low cogging.

In regards to the method of making limitations for dynamic compaction of claims 5, 6. As a product by a process claim "even though the product-by process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of the product does not depend on its method of production. If the product in the product by process claim is the same or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process". *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966(Fed. Cir. 1985). Nozawa teaches the magnet can be made by any approach such as powder-metallurgy processing, plastic-working methods (setting rolling, extrusion, etc.), a bond magnet, etc....where electromagnetic compression and injection molding are two known types of manufacturing processes for permanent magnets.

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nozawa et al. (Nozawa)(JP 06-038415) and Sakamoto (JP 07-154935), in further view of Ferreira (US 5204572). Nozawa and Sakamoto teach every aspect of the invention except the magnet extending to the perimeter of the rotor. Ferreira teaches a rotor having a spoked rotor with poles in between the magnets (figure 5) with the magnets extending to the perimeter of the rotor. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the rotor of Nozawa and Sakamoto with the magnets and poles of Ferreira to increase the coupling efficiency of the rotor and decrease the size the of the dynamo.

8. Claims 7 and 34 rejected under 35 U.S.C. 103(a) as being unpatentable over Nozawa et al. (Nozawa)(JP 06-038415) and Sakamoto (JP 07-154935), in further view of Kawamata et al. (Kawamata)(JP 08-223832). Nozawa and Sakamoto teach every aspect of the invention except the magnets being plastic magnets molded around the pole pieces. Kawamata teaches the plastic (resin/powder) magnets 7-1, 7-8 being injection molded around the poles 6 retained by dovetails 2b, 2c. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the rotor of Nozawa and Sakamoto with the magnets and poles of Kawamata to provide laminated poles with low cogging torque.

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9. Claims 8, 9, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nozawa et al. (Nozawa)(JP 06-038415) and Sakamoto (JP 07-154935), in further view of Cuenot et al. (Cuenot)(US 5091668). Nozawa and Sakamoto teach every aspect of the invention except the poles retained by dovetails. Cuenot teaches the poles 3 retained by dovetails 2b, 2c to prevent outward radial movement. Cuenot teaches the shaft 1 is a solid core. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the rotor of Nozawa and Sakamoto with the poles having dovetails because Cuenot teaches that the poles can be secured to the rotor with dovetails.

10. Claims 8, 10, 35, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nozawa et al. (Nozawa)(JP 06-038415) and Sakamoto (JP 07-154935), in further view of Noodleman (US 3979821). Nozawa and Sakamoto teach every aspect of the invention the poles retained by a main and a narrower throat portion and no bolt passing through the ferromagnetic pole pieces. Noodleman teaches the poles 200 held by a retainer with a main and narrow neck to provide a secure rotor structure at high speeds and without bolts. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the rotor of Nozawa and Sakamoto with the poles retained by a main and narrow neck portion to maintain rotor integrity at high speeds as taught by Noodleman.

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11. Claims 11, 14, 37, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nozawa et al. (Nozawa)(JP 06-038415) and Sakamoto (JP 07-154935), in further view of Nichiki (JP 6-62541). Nozawa and Sakamoto teach every aspect of the invention the axis of rotation extending through the permanent magnet material. Nichiki teaches the rotor magnet material extending through the axis of rotation to simplify production. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the rotor of Nozawa and Sakamoto with the resin magnetic material extending through the axis of rotation to simplify production.

12. Claim 18, 43, and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nozawa et al. (Nozawa)(JP 06-038415) and Sakamoto (JP 07-154935), in further view of Uchida (US 5157297). Nozawa and Sakamoto teach every aspect of the invention except a core portion and the circumferential portion not being magnetized. Uchida teaches a circumferentially magnetized rotor mounted on a magnetic shaft 12 with non-magnetic cover 22 being not magnetized. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the rotor of Nozawa and Sakamoto on a core and a non-magnetic circumferential portion because Uchida teaches the magnetic shafts/cores are low cost rotor supports.

13. Claims 44, 45, 54, and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nozawa et al. (Nozawa)(JP 06-038415) and Sakamoto (JP 07-154935), in further view of Pop, Sr. (Pop)(US 20020047426). Nozawa and Sakamoto teach every aspect of the invention except a permanent magnet material directly contacting the shaft of non-magnetic material. Pop teaches a circumferentially magnetized rotor with permanent magnet material mounted on a non-magnetic shaft to allow for high speeds. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the rotor of Nozawa and Sakamoto with the permanent magnet material directly contacting the shaft of non-magnetic material to provide a rotor that can operate with high torque, as taught by Pop.

14. Claims 19, 20, 25, 27, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nozawa et al. (Nozawa)(JP 06-038415) and Yamamoto et al. (Yamamoto)(JP 2001-359247). Nozawa teaches every aspect of the invention as discussed above. Nozawa teaches the magnet substantially surrounding the axis of rotation (see figure 4). Nozawa teaches every aspect of the invention except the permanent magnet material having different magnitude of magnetization on the spokes than on the portion surrounding the axis of rotation. Yamamoto teaches the surrounding portion having a smaller magnitude of magnetization than the spokes to suppress noise and vibration. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the motor of Nozawa with the different magnetizations to control noise and vibration.

In regards to the method of making limitations for dynamic compaction of claims 25-31. As a product by a process claim "even though the product-by process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of the product does not depend on its method of production. If the product in the product by process claim is the same or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process". *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966(Fed. Cir. 1985). Nozawa teaches the magnet can be made by any approach such as powder-metallurgy processing, plastic-working methods (setting rolling, extrusion, etc.), a bond magnet, etc....where electromagnetic compression and injection molding are two known types of manufacturing processes for permanent magnets.

15. Claims 22, 26, 46, and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nozawa et al. (Nozawa)(JP 06-038415) and Yamamoto et al. (Yamamoto)(JP 2001-359247), in further view of Uchida (US 5157297). Nozawa and Yamamoto teach every aspect of the invention except a core portion and the circumferential portion not being magnetized. Uchida teaches a circumferentially magnetized rotor mounted on a magnetic shaft 12 with non-magnetic cover 22 being not magnetized. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the rotor of Nozawa and Yamamoto on a core and a non-magnetic circumferential portion because Uchida teaches the magnetic shafts/cores are low cost rotor supports.

16. Claims 47, 48, 50, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nozawa et al. (Nozawa)(JP 06-038415) and Yamamoto et al. (Yamamoto)(JP 2001-359247), in further view of Pop, Sr. (Pop)(US 20020047426). Nozawa and Yamamoto teach every aspect of the invention except a permanent magnet material directly contacting the shaft of non-magnetic material. Pop teaches a circumferentially magnetized rotor with permanent magnet material mounted on a non-magnetic shaft to allow for high speeds. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the rotor of Nozawa and Yamamoto with the permanent magnet material directly contacting the shaft of non-magnetic material to provide a rotor that can operate with high torque, as taught by Pop.

17. Claim 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nozawa et al. (Nozawa)(JP 06-038415) and Yamamoto et al. (Yamamoto)(JP 2001-359247), in further view of Cuenot et al. (Cuenot)(US 5091668). Nozawa and Yamamoto teach every aspect of the invention except the poles retained by dovetails. Cuenot teaches the poles 3 retained by dovetails 2b, 2c to prevent outward radial movement. Cuenot teaches the shaft 1 is a solid core. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the rotor of Nozawa and Yamamoto with the poles having dovetails because Cuenot teaches that the poles can be secured to the rotor with dovetails.

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18. Claims 23, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nozawa et al. (Nozawa)(JP 06-038415) and Yamamoto et al. (Yamamoto)(JP 2001-359247), in further view of Nichiki (JP 6-62541). Nozawa and Yamamoto teach every aspect of the invention the axis of rotation extending through the permanent magnet material. Nichiki teaches the rotor magnet material extending through the axis of rotation to simplify production. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the rotor of Nozawa and Yamamoto with the resin magnetic material extending through the axis of rotation to simplify production.

19. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nozawa et al. (Nozawa)(JP 06-038415) and Yamamoto et al. (Yamamoto)(JP 2001-359247), in further view of Noodleman (US 3979821). Nozawa and Yamamoto teach every aspect of the invention the poles retained by a main and a narrower throat portion and no bolt passing through the ferromagnetic pole pieces. Noodleman teaches the poles 200 held by a retainer with a main and narrow neck to provide a secure rotor structure at high speeds and without bolts. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the rotor of Nozawa and Yamamoto with the poles retained by a main and narrow neck portion to maintain rotor integrity at high speeds as taught by Noodleman.

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20. Claims 42 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nozawa et al. (Nozawa)(JP 06-038415) and Sakamoto (JP 07-154935), in further view of Yamamoto et al. (Yamamoto)(JP 2001-359247). Nozawa and Sakamoto teach every aspect of the invention except the permanent magnet material having different magnitude of magnetization on the spokes than on the portion surrounding the axis of rotation. Yamamoto teaches the surrounding portion having a smaller magnitude of magnetization than the spokes to suppress noise and vibration. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the motor of Nozawa and Sakamoto with the different magnetizations to control noise and vibration.

Response to Arguments

21. Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new grounds of rejection.

Conclusion

22. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl I.E. Tamai whose telephone number is (571) 272 - 2036.

The examiner can be normally contacted on Monday through Friday from 8:00 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Darren Schuberg, can be reached at (571) 272 - 2044. The facsimile number for the Group is (571) 273 - 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Karl I Tamai
PRIMARY PATENT EXAMINER
December 17, 2005



KARL TAMAI
PRIMARY EXAMINER